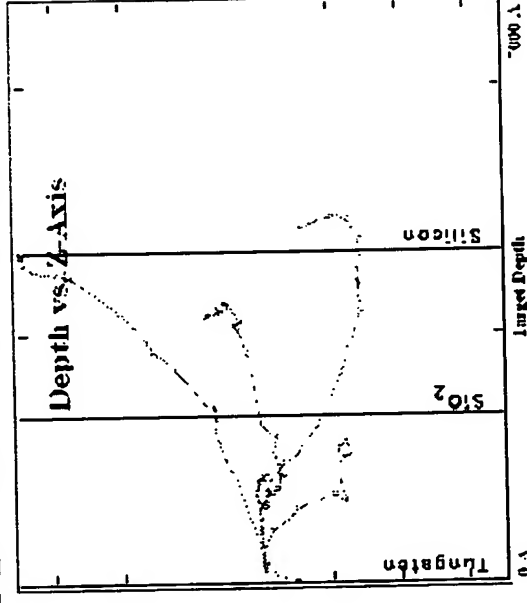




SRIM - 2003

The Stopping and Range of Ions in Matter



Major changes occurs in SRIM about every 5 years (we all have a life!). The last major changes were in 1995 and 1998. In 1995 a complete overhaul was made of the stopping of relativistic light ions with energies above 1 MeV/amu. In 1998, special attention was made to the Barkas Effect and theoretical stopping of Li ions. In 2003, new theoretical calculations have emphasized the stopping of heavy ions at lower energies.

A "module" has been made so that the stopping and ranges of SRIM may be run as a batch sub-program for other applications. This allows the user to use SRIM as a sub-routine of another application that needs stopping powers and ranges. The user creates a control file and executes the file "SRModule.exe" which will generate an output table similar to those normally made by SRIM. The user can generate the standard file (with stopping and ranges) or can generate a file which contains stopping powers for a specific list of energies. For full instructions, see the file: `"SR Module/HELP SR Module.rtf"`.

The stopping in Compounds has been given new attention. On this website, citation lists for the stopping and range of ions in more than 100 compounds are available. In SRIM, the stopping of more than 150 compounds are evaluated and suitable corrections can be applied for the bonding states. This significantly improves accuracy over the use of Bragg's rule, which merely sums the stopping for the elemental constituents of compounds, and ignores changes due to chemical bonding. The bonding corrections range up to 20% and are essential for accurate stopping and range calculations.

A full catalog of plots are available on the website. They show the accuracy of the stopping and ranges produced by SRIM. Over 500 plots are included. SRIM calculations are plotted along with 25,000 experimental data points. References to the citations which produced the experimental data are included. Below is a table showing the improvements in SRIM's stopping power accuracy when compared to